E. SHADE AND SHADOW

This section evaluates the effects of *Strategy 2000* on shade and shadow in Greater Downtown. Shadow pattern simulations were prepared for the major open space areas in the Downtown San Jose area on the following dates: December 21 (the winter solstice, when the sun is at the lowest point in the sky); March 21 (the spring equinox, when day and night are of approximately equal length), and June 21 (the summer solstice, when the sun is at its highest point in the sky). Simulations were prepared for three times during each day: 10:00 a.m.; 12:00 p.m. (noon); and 2:00 p.m.

1. Setting

There are seven major open space areas in Downtown San Jose that are particularly sensitive to shade and shadow impacts: St. James Park, Plaza of Palms, Plaza de Cesar Chavez, Paseo de San Antonio, Guadalupe River Park and McEnery Park. Other public open spaces in the project area include the confluence of the Guadalupe River and the Los Gatos Creek, known as Confluence Point.

a. St. James Park. St. James Park is an Olmstead-inspired[1] park with lawn areas, mature trees, young trees, landscaped areas, winding paths, benches, and fountains. It consists of an entire city block, and is bound by 1st Street, St. James Street, 2nd Street and St. John Street. Structures surrounding the park are set back due to the roadway, sidewalks and required building setbacks. There is a range of uses surrounding the park in buildings of 1 to 5 stories in height. Along 1st Street across from the park are the Post Office and Court House. Along St. James Street across from the park are an entertainment venue and the vacant First Church of Christ Scientist building. Along 2nd Street across from the park is a senior center. Along St. John Street is a church.

b. Plaza of Palms. The Plaza of Palms, or Corona Plaza, is a public plaza named for the tall circle of palms at the center of the plaza. The plaza contains a small café, tables and chairs, and space for small stands, exhibits, or bands. It is centrally located in the project area, bordered by northbound Market Street to the west, the San Jose Museum of Art and an office building to the north, the Fairmont Hotel to the south, and connects to 1st Street on the east.

c. Plaza de Cesar Chavez. Plaza de Cesar Chavez is a traditional public plaza, with lawn areas, mature trees, landscaped areas, paths, benches, fountains and an amphitheater. It is centrally located in the project area, dividing the northbound and southbound lanes of Market Street between San Fernando Street and 1st Street. Structures surrounding the plaza are setback considerably due to the width of Market Street, sidewalks and required building setbacks. Buildings surrounding the Plaza include the San Jose Museum, the Fairmont Hotel and Annex, a parking garage, the Tech Museum, and several office buildings.

d. Paseo De San Antonio. Paseo De San Antonio is pedestrian oriented walkway between San Fernando and San Carlos Streets, currently from the edge of San Jose State University at 4th Street to Market Street. Structures surrounding the paseo include apartments, condominiums, a State building and other office uses, and theaters.

[1] Frederick Law Olmsted (1822-1903) is often referred to as the founder of American Landscape Architecture and was the nation's foremost parkmaker. His most well know designs include Central Park and Prospect Park in New York, the Boston Park system, Chicago's South Park, and the U.S. Capital grounds in Washington, DC.

e. Guadalupe River Park. Guadalupe River Park is a multi-use linear park corridor that extends north-south through the project area. Central to the park corridor is the Guadalupe River, and along the river there are a variety of designed and natural spaces, from plazas to pedestrian and bicycle paths to natural riparian habitat. In the vicinity of the Children's Discovery Museum, south of West San Carlos Street and west of SR-87, Guadalupe River Park is a wider, manicured park area, which provides open space for downtown employees, residents and visitors.

f. McEnery Park. McEnery Park is a park south of San Fernando Street between Alamaden and Guadalupe River Park. South of the park are three 16-story high office buildings (the Adobe Systems complex). The park contains a range of amenities, including a tot lot, lawn areas, landscaping, tables, benches, sculptures, and public restrooms.

g. Confluence Point. The Guadalupe River and Los Gatos Creek come together between West Santa Clara and St. John streets, west of I-87. The area surrounding Confluence Point is undeveloped open space.

2. Impacts and Mitigation Measures

Implementation of the proposed *Strategy 2000* has the potential to create shade and shadow impacts onto nearby public or private open space between September and March.

Shade and shadow impacts occur when a structure's height or its width (or a combination of the two) reduces the access to sunlight enjoyed by another property. It should be remembered that in a built urban environment like a downtown, nearly all structures create for others and, in turn, are subject to, shade and shadows. During the summer months in San Jose when mid-day temperatures rise into the mid-90 degrees and higher levels, shading may even be desirable. In fact, the design of early buildings in San Jose provided for shade in the front of buildings during the warmest times of the year.

The City of San Jose generally identifies significant shade and shadow impacts as occurring when a building or other structure substantially reduces natural sunlight on public open spaces, measured on winter solstice when the sun is lowest in the sky (December 21st); the spring equinox, when day and night are approximately equal in length (March 21st); and the summer solstice when the sun is at its highest point in the sky (June 21st). A series of shadow simulation studies was prepared for potential development associated with the *Strategy 2000* for shadows that would be cast onto any of the seven major open spaces in the Downtown: December 21st, March 21st, and June 21$^{St.}$ Shadow patterns were calculated and illustrated using software designed for this purpose for three times of day for each of the days: 10:00 a.m., 12:00 p.m., and 2:00 p.m. The resulting simulations are provided in Appendix E. The percent increase in shade from new development was also calculated along with the visual simulations.[2]

a. Criteria of Significance. Implementation of *Strategy 2000* would have a significant shade and shadow impact if it would:

[2] It should be noted that the building envelopes modeled for purposes of these shade and shadow simulations represent the maximum potential mass of a development project under the Plan and other development regulations.

- Result in a 10 percent or greater increase in the shadow cast onto any one of the six major open space areas in the Downtown San Jose area (St. James Park, Plaza of Palms, Plaza de Cesar Chavez, Paseo de San Antonio, Guadalupe River Park, McEnery Park); or
- Substantially shadow other public open space (beyond the six major open space areas) but excluding streets and sidewalks or private open space between September and March.

b. Less-than-Significant Shade and Shadow Impacts. Implementation of the proposed project would lead to less-than-significant impacts as described below.

(1) Paseo de San Antonio. New development proposed as part of *Strategy 2000* would be located southeast of existing development, adjacent to the paseo. New shadows cast by new development on the paseo would generally fall where shadows are already cast (see Appendix E, Figures 1a to 1i.). The increase in shadow would be less than 10 percent.

(2) Guadalupe River Park. Guadalupe River Park, south of West San Carlos Street and west of SR-87, includes the developments of the Children's Discovery Museum to the south and the Center for the Performing Arts north of West San Carlos Street. There are no development areas proposed as part of *Strategy 2000* that would cast shadow onto the Guadalupe River Park in this area (see Appendix E, Figures 2a to 2i).

(3) McEnery Park. The area southeast of McEnery Park is currently developed with three tall office towers. There are no development areas proposed as part of *Strategy 2000* that would cast shadow onto McEnery Park (see Appendix E, Figures 2a to 2i).

(4) Confluence Point. The area surrounding the confluence of the Guadalupe River and the Los Gatos Creek is undeveloped. Development is not proposed for this area as part of *Strategy 2000*, and as such, no new shade or shadow would be cast on Confluence Point (see Appendix E, Figures 3a to 3i).

c. Significant Shade and Shadow Impacts. Implementation of the proposed project would lead to significant shade and shadow impacts upon three of the major public open spaces in the Downtown as described below.

(1) St. James Park. In *Strategy 2000*, development sites are identified to the north, south, east and southwest of St. James Park. On December 21, there could be a greater than 10 percent increase in the shadow cast at 10:00 a.m., 12:00 p.m., and 2:00 p.m., as shown in Figures V.E-1a, 1b, and 1c. On March 21 and June 21, the increases in shadow would be less than 10 percent (see Appendix E, Figures 4d through 4i).

Impact SHADE-1: On December 21, potential development and redevelopment related to implementation of *Strategy 2000* could create a greater than 10 percent increase in the shade and shadow cast on St. James Park. (S)

Strategy 2000 includes Strategies and Actions by Systems, that relate to urban design and shade and shadow impacts as follows:

Figure V.E-1a: St. James Park – Shadow Simulation Study, Dec 21st at 10:00 a.m

8 x 11, B&W

Figure V.E-1b: St. James Park – Shadow Simulation Study, Dec 21st at 12:00 noon.

8 x 11, B&W

Figure V.E-1c: St. James Park – Shadow Simulation Study, Dec 21st at 2:00 p.m.

8 x 11, B&W

- *Strategies and Actions by System, Public Realm 1* – Encourage compatible development around parks, including Plaza de Cesar Chavez, St. James Park, and the green space along Guadalupe River Park and Gardens. Ensure that building designs orient toward open spaces. Allow and encourage higher densities at park edges to accentuate the space, increase the number of users, and maximize the return on public investment in amenities.
- *Strategies and Actions by System, Public Realm 6* – In the design and placement of buildings, consider their impact on sun, shade, and wind in public spaces, especially the Circle of Palms, Repertory Plaza, St. James Park, Plaza de Cesar Chavez and Paseo de San Antonio.
- *Strategies and Actions by System, Urban Form and Buildings 4* – Structures should be oriented such that urban open spaces, such as Plaza de Cesar Chavez, Circle of Palms, Repertory Plaza, and St. James Park receive adequate direct sun and filtered daylight and are protected from building glare, excessive shade, and wind.

The identified *Strategy 2000* strategies and actions would reduce but not eliminate the significant adverse shade and shadow impact from development on St. James Park. Although the City would balance the desired higher density development at the park edges and the desired adequate sun and filtered daylight on the parks, this impact could remain significant. Implementation of the following mitigation measure would reduce the impact to a less-than-significant level.

> Mitigation Measure SHADE-1: Proposed development applications for sites directly south and southwest of St. James Park shall include project-specific shade and shadow analyses. These shade and shadow analyses must demonstrate that the proposed development would not result in a 10 percent or greater increase in the shadow cast onto St. James Park on December 21. (LTS)

(2) Plaza of Palms. In *Strategy 2000*, development sites are identified north of San Carlos Street, east of 1st Street, and north and south of Park Avenue west of Plaza de Cesar Chavez in the vicinity of the Plaza of Palms. On December 21 at 2:00 p.m, there could be a greater than 10 percent increase in the shadow cast, as shown in Figure V.E-2a. For all other days and times, the increases in shadow would be less than 10 percent (see Appendix E, Figures 1a and 1b and 1d through 1i).

Impact SHADE-2: On December 21, potential development and redevelopment related to implementation of *Strategy 2000* could create a greater than 10 percent increase in the shade and shadow cast on the Plaza of Palms. (S)

Implementation of the Strategies and Actions by System listed above under Impact SHADE-1 would reduce, but not necessarily to a less-than-significant level, Impact SHADE-2. In addition to implementing those Strategies and Actions, Mitigation Measure SHADE-2, below, shall be implemented to reduce this impact to a less-than-significant level.

> Mitigation Measure SHADE-2: Proposed development applications for the site at the northeast corner of Park Avenue and Market Street shall include project-specific shade and shadow analyses. These shade and shadow analyses must demonstrate that the proposed development would not result in a 10 percent or greater increase in the shadow cast onto Plaza of the Palms on December 21. (LTS)

(3) Plaza de Cesar Chavez. In *Strategy 2000,* development sites in the vicinity of the Plaza de Cesar Chavez include sites north of San Carlos Street, and north and south of Park Avenue. On December 21 at 2:00 p.m., March 21 at 10:00 a.m., and March 21 at 2:00 p.m., a greater than 10 percent increase in the shadow cast onto the Plaza would occur, as shown in Figures V.E-2a, V.E-2b, and V.E-2c. For all other days and times, the increases in shadow would be less than 10 percent (see Appendix E, Figures 1a, 1b, 1e, and 1g through 1i).

Impact SHADE-3: On December 21 and March 21, potential development and redevelopment related to implementation of *Strategy 2000* could create a greater than 10 percent increase in the shadow cast on the Plaza de Cesar Chavez. (S)

Implementation of the Strategies and Actions by System listed above under Impact SHADE-1 would reduce, but not necessarily to a less-than-significant level, Impact SHADE-3. In addition to implementing those Strategies and Actions, Mitigation Measure SHADE-3, below, shall be implemented to reduce this impact to a less-than-significant level.

> Mitigation Measure SHADE-3a: Proposed development applications for sites southwest of the Plaza de Cesar Chavez shall include project-specific shade and shadow analyses. These shade and shadow analyses must demonstrate that the proposed development would not result in a 10 percent or greater increase in the shadow cast onto the Plaza de Cesar Chavez on December 21 and March 21.
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> Mitigation Measure SHADE-3b: Proposed development applications for sites directly southeast of the Plaza de Cesar Chavez shall include a shade and shadow analysis. This shade and shadow analysis must demonstrate that the proposed development would not result in a 10 percent or greater increase in the shadow cast onto the Plaza de Cesar Chavez on December 21 or March 21. (LTS)

Figure V.E-2a: Cesar Chavez/Corona Plaza – Shadow Simulation Study, Dec 21st at 2:00 p.m.

8 x 11, B&W

Figure V.E-2b: Cesar Chavez/Corona Plaza – Shadow Simulation Study, March at 10:00 a.m.

8 x 11, B&W

Figure V.E-2c: Cesar Chavez/Corona Plaza – Shadow Simulation Study, March at 2:00 p.m.

8 x 11, B&W